UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,281	11/03/2003	Larry Lee Schumacher	5854-00500	4501

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EXAMINER
TO, JENNIFER N

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2009*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-16 and 21-24* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *10-15 and 21-23* is/are rejected.
7)☐ Claim(s) *16 and 24* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   Claims 10-16 and 21-24 are pending for examination.

2.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

05/11/2009 has been entered.

3.   The disclosure is objected to because it contains an embedded hyperlink and/or

other form of browser-executable code (see specification, page 6, line 14). Applicant is

required to delete the embedded hyperlink and/or other form of browser-executable

code. See MPEP § 608.01.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 10-15, and 21-23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kakivaya et al. (hereafter Kakivaya) (U.S. Patent No. 7124405), in

view of Hsiao (U.S. Patent No. 5764976), and further in view of Tabloski et al. (hereafter

Tabloski) (U.S. Patent No. 5999729).

6.   Kakivaya and Tabloski were cited in the previous office action.

7.   As per claim 10, Kakivaya teaches the invention substantially as claim including

a method of deadlock management in a multi-thread system (col. 1, lines 10-11; col. 2,

lines 5-9, 64 through col. 3, line 1) comprising:

        determining if one or more threads are blocked, and determining if the blocked

thread is sending data or receiving data (col. 4, lines 20-26; col. 16, line 66 through col.

17, line 7); and

        determining if a deadlock exists by examining a wait graph of the blocked threads

in the system, and determining if the graph is cyclic, that is waiting on itself, indicating a

deadlock does exist (col. 4, lines 5-18, col. 10, lines 13-35; col. 10, lines 40-62).

8.   Kakivaya did not specifically teach determining if a deadlock exists by building a

wait graph of the blocked threads.

9.   However Hsiao teaches determining if a deadlock exists by building a wait graph

of the blocked threads (col. 3, lines 5-20).

10.   It would have been obvious to one of an ordinary skill in the art at the time the

invention was made to have include the feature of determining if a deadlock exists by

building a wait graph of the blocked threads as suggested in Hsiao into Kakivaya

because both of the system addressing the need of detecting deadlock and by

incoperating the teaching of Hsiao into Kakivaya's system would produce a deadlock

detecting system having multiple processes that capable of locking resources (Hsiao,

col. 1, lines 10-12).

11.   Kakivaya and Hsiao did not specifically teach parallel processing data

management system having sending and receiving ports for sending and receiving data

tokens, wherein a receiving port blocks if a data token is unavailable and a sending port

blocks when a queue limit is reached, and allocating at least one thread to a first

process and at least one thread to a second process, wherein the first and second

processes are connected through a queue via sending and receiving ports.

12.   However, Tabloski teaches parallel processing data management system having

sending and receiving ports for sending and receiving data tokens (abstract, lines 10-

14; col. 1, line 65 through col. 2, line 3), wherein a receiving port blocks if a data token

is unavailable and a sending port blocks when a queue limit is reached (abstract, lines

20-22), and allocating at least one thread to a first process and at least one thread to a

second process, wherein the first and second processes are connected through a

queue via sending and receiving ports (col. 6, lines 60-64; col. 7, lines 49-56).

13.   It would have been obvious to one of another skill in the art at the time the invention was made to have to incorporated the teaching of system having sending and receiving ports for sending and receiving data tokens, wherein a receiving port blocks if a data token is unavailable and a sending port blocks when a queue limit is reached, and allocating at least one thread to a first process and at least one thread to a second process, wherein the first and second processes are connected through a queue via sending and receiving ports as disclosed in Tabloski into Kakivaya and Hsiao's system because of the systems are dealing with dataflow control in a parallel processing system and by incorporating the teaching of Kakivaya, Hsiao and Tabloski would produce system that capable of assisting dataflow in parallel processing environment to resolve deadlock.

14.   As per claim 11, Tabloski teaches blocking a receiving port when a limit on the number of data tokens in the queue is reached (abstract, lines 20-22).

15.   As per claim 12, Tabloski teaches blocking a sending port when a limit on the number of data tokens in the queue is reached (abstract, lines 20-22).

16.   As per claim 13, Kakivaya teaches traversing the wait graph to determine if it is cyclic (col. 4, lines 5-18).

17.   As per claim 14, Tabloski teaches correcting the deadlock by allowing the queue limit of the number of data tokens on a first queue to increase (col. 22, lines 38-45).

18.   As per Claim 15, Tabloski further discloses the limit of a queue associated with a sending port is allowed to increase (col. 22, lines 38-45).

19.   As per claim 21, it is rejected for the same reason as claims 10 and 14 above. In addition, Tabloski teaches providing a dataflow application comprising a plurality of map components and data ports, a number of map components being linked between data ports and each map component comprising one or more processes (abstract, lines 10-14 & column 1, line 65 – column 2, line 3), allocating a processing thread to each respective process (abstract, lines 18-21), and executing multiple processes in parallel (abstract, lines 1-3).

20.   As per claims 22-23, they are rejected for the same reason as claims 13 and 15 above.

Allowable Subject Matter

21.   Claims 16 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

22.   Applicant's arguments with respect to claims 10-16, and 21-24 have been

considered but are moot in view of the new ground(s) of rejection.

Conclusion

23.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure (see attached PTO 892 form for details).

24.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JENNIFER N. TO whose telephone number is (571)272-

7212. The examiner can normally be reached on M-T 6AM- 3:30 PM, F 6AM- 2:30 PM.

25.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

26.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VAN H NGUYEN/   /Jennifer To/
Primary Examiner, Art Unit 2194   Patent Examiner
                                                         AU 2195